

AMENDMENTS TO THE CLAIMS

Please amend claims 1, 7, 8, 17 – 20, 24, 26, 27 and 30 – 33, cancel claims 2 – 6, 13 – 16, 21 – 23 and 34, and add new claims 36 – 38, as set forth in the listing of claims that follows:

Listing of Claims

(insert listing of marked-up claims)

1. (currently amended) An electronic assembly, comprising:
a substrate;
an electronic device having a first, second and third surface, said
electronic device supported by said substrate;
a heat pipe having a first and second segment, said first segment thermally
coupled with said first surface of said electronic device; ~~and~~
a thermal transient suppression material thermally coupled with said first
segment of said heat pipe and at least said second surface of said electronic device, said
material having a component capable of absorbing thermal energy by phase change from
a solid to a liquid and said material being self contained, wherein said thermal transient
suppression material includes sufficient thermal capacity for receiving transient thermal
energy produced by said electronic device, and
said heat pipe includes sufficient thermal capacity for receiving non-
transient thermal energy produced by said electronic device and thermal energy received
by said thermal transient suppression material;
a heat dissipation device thermally coupled with said second portion of
said heat pipe, wherein said heat dissipation device comprises a heat sink having cooling
fins, and said heat sink comprises a first case portion; and
an elastomeric spring compressed between said first case portion and said
first segment of said heat pipe, thereby maintaining said first portion of said heat pipe in
thermal contact with said first surface of said electronic device.

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (currently amended) The electronic assembly of ~~claim 6~~
claim 1, wherein said first case portion includes a recess, said recess
receiving said elastomeric material.

8. (currently amended) The electronic assembly of ~~claim 6~~
claim 1, further comprising:
a second case portion, said second case portion being thermally
conductive; and
a thermally conductive coupling member thermally coupling said third
surface of said electronic device with said second case portion.

9. (original) The electronic assembly of claim 8, wherein said
first surface and said third surface are located on opposite sides of said electronic device.

10. (original) The electronic assembly of claim 9, wherein said
substrate defines an aperture and said thermally conductive coupling member protrudes
through said aperture.

11. (original) The electronic assembly of claim 8, wherein said
first case portion and said second case portion substantially enshroud said substrate and
said electronic device therebetween.

12. (original) The electronic assembly of claim 11, wherein said first case portion and said second case portion further substantially enshroud said heat pipe.

13. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (currently amended) The electronic assembly of ~~claim 2~~ claim 1, wherein said heat pipe includes a porous interior layer and liquid which is absorbable by said porous interior layer to provide heat conduction from said first segment to said second segment without requiring a mechanical pump.

18. (currently amended) The electronic assembly of ~~claim 2~~ claim 1, further comprising at least a second heat pipe thermally coupled with at least one of said first surface and said third surface of said electronic device.

19. (currently amended) The electronic assembly of ~~claim 2~~ claim 1, wherein said substrate includes a high current printed circuit board.

20. (currently amended) An electronic assembly, comprising:
a high current circuit board;
a first electronic device supported by said circuit board and having a first, second and third surface;
a heat conductive case having a first and second portion adjacent opposite sides of said circuit board; ~~and~~
a first heat pipe having a first segment thermally coupled with said first surface of said first electronic device and a second segment thermally coupled with said first case portion; and

a thermal transient suppression material in thermal contact with said second surface of said electronic device and said first segment of said first heat pipe, wherein said thermal transient suppression material includes sufficient thermal capacity for receiving transient thermal energy produced by said first electronic device, and said first heat pipe includes sufficient thermal capacity for receiving non-transient thermal energy produced by said first electronic device and thermal energy received by said thermal transient suppression material, and wherein said second case portion is in thermal contact with said third surface of said electronic device.

21. (canceled)

22. (canceled)

23. (canceled)

24. (currently amended) The electronic assembly of ~~claim 23~~ claim 20, wherein said first surface and said second surface are located on opposite sides of said electronic device.

25. (original) The electronic assembly of claim 24, further comprising a thermally conductive coupling member coupled between said second case portion and said third surface of said electronic device, and wherein said circuit board defines an aperture and said coupling member protrudes through said aperture.

26. (currently amended) The electronic assembly of ~~claim 23~~ claim 20, further comprising an elastomeric spring compressed between said first segment of said heat pipe and said first case portion.

27. (currently amended) The electronic assembly of ~~claim 23~~ claim 20, further comprising:

a second electronic device supported by said circuit board; and

a second heat pipe having a first segment and a second segment, said first segment of said second heat pipe thermally coupled with said second electronic device.

28. (original) The electronic assembly of claim 27, wherein said second segment of said second heat pipe is thermally coupled with at least one of said first case portion and said second case portion.

29. (original) The electronic assembly of claim 28, wherein said first electronic device and said second electronic device are coupled to opposite sides of said circuit board.

30. (currently amended) The electronic assembly of ~~claim 22~~ claim 20, wherein said first electronic device includes electrically conductive leads and said thermal transient suppression material is thermally coupled with said leads.

31. (currently amended) The electronic assembly of ~~claim 22~~ claim 20, wherein at least one of said first and second case portions comprises cooling fins.

32. (currently amended) The electronic assembly of ~~claim 22~~ claim 20, further comprising at least a second heat pipe coupled with at least one of said first surface and said second surface of said first electronic device.

33. (currently amended) A method of conducting heat away from an electronic device, comprising the steps of:
thermally coupling a heat pipe between the electric device and a heat sink;
and

~~coupling a thermal transient suppression material to the electronic device~~
~~and the heat pipe~~

mounting the electronic device on a substrate;
coupling the substrate to the heat sink; and
providing an elastomeric spring between the heat pipe and the heat sink to
effect compressive loading of the heat pipe against the electronic device.

34. (canceled)

35. (original) The method of claim 33, further comprising the step of shaping a portion of the heat pipe to provide improved thermal coupling with the electronic device.

36. (NEW) An electronic assembly, comprising:
a substrate;
an electronic device having a first, second and third surface, said electronic device supported by said substrate;
a heat pipe having a first and second segment, said first segment thermally coupled with said first surface of said electronic device;
a thermal transient suppression material thermally coupled with said first segment of said heat pipe and at least said second surface of said electronic device, said material having a component capable of absorbing thermal energy by phase change from a solid to a liquid and said material being self contained; and
a thermally conductive coupling member coupling said first surface of said electronic device and said first segment of said heat pipe,
wherein said substrate defines an aperture and wherein said first surface of said device faces said aperture and said thermally conductive coupling member protrudes through said aperture.

37. (NEW) An electronic assembly, comprising:
a substrate;
an electronic device having a first, second and third surface, said electronic device supported by said substrate;
a heat pipe having a first and second segment, said first segment thermally coupled with said first surface of said electronic device; and
a thermal transient suppression material thermally coupled with said first segment of said heat pipe and at least said second surface of said electronic device, said material having a component capable of absorbing thermal energy by phase change from a solid to a liquid and said material being self contained,
wherein said first segment of said heat pipe is formed to conform to the shape of said first surface of said electronic device, and
wherein said first segment of said heat pipe includes an external flattened portion in contact with said first surface of said electronic device.

38. (NEW) An electronic assembly, comprising:
a substrate;
an electronic device having an external surface, said electronic device supported by said substrate;
a heat pipe having a first and second segment, said first segment thermally coupled with said first surface of said electronic device;
a heat dissipation device thermally coupled with said second portion of said heat pipe; and
an elastomeric spring compressed between said heat dissipation device and said first segment of said heat pipe, thereby maintaining said first portion of said heat pipe in thermal contact with said surface of said electronic device.